**Sample Tests**

**Test 1 try with category “boots” to find 3 gifts**

**input:**

Please enter number of gift you are looking for:

3

Please enter a target total price you want to spend:

10

Please enter a category you want to shop:

boots

**output:**

Retrieving products information...

Matching products...

Dan Post Work & Outdoor High Performance Socks- Heavy Weight Steel Toe 1-Pack(8036444):$6.99 Leather Conditioning Cream(7489318):$9.00 Frye Weatherproof Spray(7792209):$9.00

* Note the total price looks far from input $10. But this is the closet sets of 3 can get from the products in boots.

**Test 2 try with all of all products to find 3 gifts**

**input:**

Please enter number of gift you are looking for:

3

Please enter a target total price you want to spend:

10

Please enter a category you want to shop:

**output:**

Retrieving products information...

Matching products...

Tot Bowl for Big Kids(8314215):$3.99 Gypsy Liners(8101781):$4.99 Good Grips&#174; Locktop Container(8232058):$4.99

Tot Bowl for Big Kids(8314215):$3.99 Gypsy Liners(8101781):$4.99 RFIDsleeve 25 RFID Blocking Credit Sleeve (2 pack)(8153748):$4.99

* Note that if the user left the category empty, default search will be searching all the products

**Test 3 try with all of all products to find 4 gifts**

**input:**

Please enter number of gift you are looking for:

4

Please enter a target total price you want to spend:

20

Please enter a category you want to shop:

**output:**

Retrieving products information...

Matching products...

Tot Bowl for Big Kids(8314215):$3.99 Gypsy Liners(8101781):$4.99 Lacquer Thinner(8166944):$5.00 Naturally Clean Nail Polish Remover(7942517):$6.00

Tot Bowl for Big Kids(8314215):$3.99 RFIDsleeve 25 RFID Blocking Credit Sleeve (2 pack)(8153748):$4.99 Lacquer Thinner(8166944):$5.00 Naturally Clean Nail Polish Remover(7942517):$6.00

Tot Bowl for Big Kids(8314215):$3.99 Good Grips&#174; Locktop Container(8232058):$4.99 Lacquer Thinner(8166944):$5.00 Naturally Clean Nail Polish Remover(7942517):$6.00

**Test 4 invalid input**

**input:**

Please enter number of gift you are looking for:

0

Please enter a target total price you want to spend:

0

Please enter a category you want to shop:

all

**output:**

please give n>0 and totalprice>0

**Test 5 gifts number is more than the products found under the target price**

**input:**

Please enter number of gift you are looking for:

1000000

Please enter a target total price you want to spend:

5

Please enter a category you want to shop:

**output:**

Retrieving products information...

Matching products...

Please give an item number between 1 and number of products found (200)

**Current Limitations and Discussions:**

1 The program will throw exceptions if input “category” is not a valid one. As time Limited and it is not required by the interview question, I did not try to handle that at this point.

2 As the API limit the each request can only return 100 items per page, therefore I iterated page by page until the first item on the page is above the target value. So I observed the time (after print out “Retrieving products information...”) is quite long for retrieving products, especially when the target price is high, as the program need to send a lot of requests to the API.

3 I think this problem is an NPC problem. So, when the n (number of products) goes big, the program will be slow. Some approximation can be made to increase the speed. But here I just want to return all the possible sets

4 Internet connection issue. Sometime I got error messages such as ”401 for URL: [http://api.zappos.com/Search?limit=100&term=&sort={"price":"asc"}&page=1&key=52ddafbe3ee659bad97fcce7c53592916a6bfd73](http://api.zappos.com/Search?limit=100&term=&sort=%7b%22price%22:%22asc%22%7d&page=1&key=52ddafbe3ee659bad97fcce7c53592916a6bfd73)” which it could be caused by reaching the limit of requests set by the API. It will return **{"statusCode":"401","error":"Zappos API requests are being throttled, see Http Response Header for more info"}** by the API, if enter this to the browser.